ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
Revision of the Commission's Rules	)	
To Ensure Compatibility with	)	CC Docket No. 94-102
Enhanced 911 Emergency	)	
Calling Systems	)	

To: Chief, Wireless Telecommunications Bureau

QUARTERLY UPDATE TO REQUEST FOR WAIVER OF SECTION 20.18

Aliant Cellular Inc. ("ACI"), by its attorneys, hereby files a quarterly update to its request for rule waiver ("Waiver") of Section 20.18 of the Commission's Rules, pursuant to the FCC's Order released on November 13, 1998.[1] On December 4, 1998, ACI, Omaha Cellular Limited Partnership, and Aliant Communications Co. (collectively "Aliant") filed waivers of Section 20.18 the Commission's rules, as that section relates to the transmission of 911 calls made from TTY devices using digital wireless systems. Due to a corporate reorganization which has recently been completed, the subject FCC licenses for which Aliant previously sought a rule waiver are now all held by ACI. Thus, ACI hereby files one consolidated update to the waivers previously filed by the aforementioned entities. The Commission granted Aliant a temporary waiver of Section 20.18,

[1] In the Matter of Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, Order, rel. Nov. 13, 1998 ("Order I").

which went into effect on January 1, 1999.[2] In order to maintain its Waiver, ACI must file quarterly updates to show what advances have been made in the development of commercially available equipment. In support thereof, the following is respectfully shown:

Order I sets forth specific questions that should be answered in support of waivers of Section 20.18. ACI submits that these questions relate to the specifications of the equipment that is being developed to provide TTY compatible service, and as such are beyond the scope of information which ACI can provide. Therefore, such questions are more appropriately addressed by ACI's equipment vendor because the equipment vendor, and not ACI, is directly involved in developing compliant equipment. To form the basis of extending its Waiver, ACI requested that its equipment vendor provide responses to all information set forth in Order I. The equipment vendor's response is attached as Exhibit A. Based on the information set forth in Exhibit A, ACI respectfully requests extension of its waiver of Section 20.18 of the Commission's rules until such time as compliant equipment is available from its equipment vendor.

In accordance with the terms of Order I, on a quarterly basis ACI will request updated information from its equipment vendor regarding its progress on developing compliant equipment and submit such updates to extend this waiver request. As soon as equipment is commercially

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[2]In the Matter of Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, Order, rel. Dec. 31, 1998 ("Order II").

available from its equipment vendor, ACI intends to comply with Section 20.18 of the Commission's rules.

Respectfully submitted,

ALIANT CELLULAR INC.

Susan C. Belardi

Dated: June 30, 1999

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MOTOROLA

June 25, 1999

Mr. Jeff Dale
Chief Technical Director
Aliant Cellular, Inc.
500 South 16th Street
Lincoln, NE 68501-1309

Dear Jeff:

Motorola fully supports the goals of Federal Communications Commission (FCC) which has called upon telecommunications providers to ensure compatibility of existing TDD equipment with Enhanced 911 (E-911) Emergency Calling Systems.

We have been, and will continue, working with industry groups including the Cellular Telecommunications Industry Association (CTIA), Wireless TTY Forum, and the Telecommunications Industry Association (TIA) to find possible solutions for TDD access over digital wireless systems.

In light of the Order by the Federal Communications Commission, DA98-2323, which was released November 13, 1998 (November Order), Motorola would like to share with you our plans for providing compliance to this order.

Motorola is evaluating voice-based solutions that involve changes to the CDMA vocoder as proposed in the TIA/CDG, as well as internally developed solutions. Unfortunately, due to the complexity of the vocoder solutions, we view these as longer-term solutions, not short-term. As the industry grows closer to accepting a single solution, we will inform you of our plans.

Currently, Motorola is working with our vendors to add TTY protocol to the Inter-working Unit (IWU). This capability will be provided as a software upgrade to the current commercially available IWU. We have begun work on the project, and have a plan in place that should make the software upgrade available for First Office Application (FOA) by September 20, 1999. An FOA test will be conducted with one operator in one location. It is our expectation that the IWU software upgrade for this feature will be Generally Available (GA) to all operators by December 15, 1999.

Some of the details of the capability for TDD support through a data service option are as follows:

1. TTY protocols, specifically 45.45 baud Baudot will be supported along with the currently supported ASCII protocols, V.21 and Bell 103.

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2. Selection of the TTY/TDD protocols by the subscriber will be compliant with *Data Service Options for Wideband Spread Spectrum Systems: AT Command Processing and the R_m Interface* published as IS-707.3 by the TIA.
3. There will be no hardware modification to the IWU, the protocol will be added as a software upgrade.

Part of the requirement of the November Order, is to show what steps the carrier will take to address the consumer concerns in the Order by the Federal Communications Commission, DA98-1982, released September 30, 1998. Motorola has evaluated these concerns in light of the solution proposed for the infrastructure.

The concerns are listed below, followed by our evaluation for the IWU solution.

1. The character error rate should approximate that of AMPS, which has been demonstrated at <1% for stationary calls.

More research on AMPS performance with TTY would be useful to assist in specifying a range of conditions. A data solution should have a very low character error rate, on the order of $1x10^{-4}$ or less.

2. The TTY caller must be able to visually monitor all aspects of call progress provided to voice users. Specifically, the ability to pass through sounds on the line to the TTY (so that the user can monitor ring, busy, answered-in-voice, etc.) should be provided.

Call progress is indicated by messages relayed from the IWU and by call status messages on the CDMA phone. Available messages include ring, busy, and connect. While a data call is in progress, the mobile phone speakers are off. In a data call, no audio signals are sent from the network.

3. There must be a visual indication when the call has been disconnected.

Motorola phones show a message when the phone is ready, in use, and they also show error messages should there be an unexpected call termination.

4. A volume control should be provided.

Motorola phones are equipped with volume controls.

5. The TTY user must have a means of tactile (vibrating) ring signal indication.

Several models of Motorola phones are equipped with vibrating ring signal indications.

6. The caller must be able to transmit TTY tones independent of the condition of the receiving modem. (This is to permit baudot signaling by pressing a key, to let a hearing person know that the incoming call is from a TTY.)

Baudot does not use a "Calling Tone" - the signal heard when facsimile machines begin to connect. When connected to the IWU, any character transmitted from the mobile phone to the IWU will cause the IWU to send the corresponding signal regardless of the condition of the receiving modem.

7. The landline party's TTY must not require retrofitting in order to achieve the desired error rate.

The protocols in the IWU for TDD will allow the caller to choose Baudot or ASCII protocols. These will follow industry standard protocols and will not incorporate any proprietary signaling or modified data transfer rates. Therefore, there should be no impact on the landline TDD. It is expected that the wireless TDD will either be modified to use RS-232 to communicate with the IWU or have a device to convert the TTY signals to serial data.

8. The wireless party's TTY may require retrofitting, or a new model TTY to be developed, or the use of a portable data terminal such as a personal digital assistant.

The choice of protocol is engaged by using a Hayes Compatible modem command, "AT+MV18S". This command can come from the phone, a device that attaches the TDD to the phone, or by the subscriber entering it directly. The phone will be expecting RS-232 communications from the TDD. If the TDD is a Personal Digital Assistant, computer, or portable data terminal, the subscriber would also be able to connect to most any Remote Access Server, such as those provided by Internet Service Providers or On-line Information Providers. This is because they would have full access to the capabilities of the IWU for data transmission.

9. VCO and HCO should be supported where possible.

Unfortunately, it is currently not possible to switch between voice and data while on a data call, nor is it possible to perform simultaneous voice and data transmissions. These features are under assessment, but are not committed to any release.

10. Reduction of throughput (partial rate) on Baudot is highly undesirable and should not be relied upon to achieve compliance (see #7). It may be useful as a user-selectable option to improve accuracy on a given call.

Reduction of throughput by increasing the length of the bit transmission rate will not be supported. The data is carried as RS-232 serial data over the air with full error recovery at speeds of either 14.4 Kbps or 9.6 Kbps. Only once it reaches the modem in the IWU, where it is no longer subject to the vagaries of the air interface, is it transmitted as full rate Baudot at 45.45 baud or ASCII at 300 baud.

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11. Call information such as ANI and ALI, where provided in wireless voice, should also be provided for TTY calls.

Tests with the currently shipping IWU show that all information provided a voice E-911 call is also provided for a data E-911 call. This includes ANI/ALI, selective routing, and cell-sector location information. A data call will provide the same E-911 Phase I call information as provided for voice.

12. The solution need not support little-used or obsolete TTY models, but in general should support the embedded base of TTYs sold over the past ten years. The landline equipment supported must not be limited to that used in Public Service Answering Points (911 centers).

The system will be fully tested before release to FOA and GA. Part of this testing includes end-to-end testing with devices connected in the Public Switched Telephone Network representative of those commercially available.

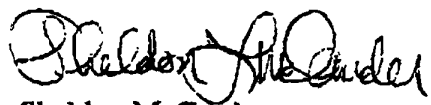
13. Drive conditions must be supported, again using AMPS as a benchmark.

The plan for testing of the system includes laboratory controlled fading, acceleration, and hand-off between base stations. These results are highly representative of conditions encountered in drive testing and provide reproducible results that help our engineers improve our products. However, we also plan to perform drive testing in uncontrolled environments as well.

It is our sincere hope that this information is timely and useful. If you have any questions regarding compatibility with Enhanced 911 Emergency Services, please feel free to contact your Motorola representative.

Thank you, and we look forward to working with you on this project.

Sincerely,



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